

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Patentee: HANS-JOACHIM TIMPE et al.	Examiner: Gilliam, Barbara Lee
Issue Date: January 25, 2005	Group Art Unit: 1752
Patent No.: 6,846,614 <i>B2</i>	
Appln. No.: 10/066,874	Docket No. 58575-278005
Filing Date: February 4, 2002	Certificate
Title: ON-PRESS DEVELOPABLE IR SENSITIVE PRINTING PLATES	MAR 03 2005
	of Correction

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Karen Hull
Karen Hull

REQUEST FOR EXPEDITED ISSUANCE OF
CERTIFICATE OF CORRECTION OF PATENT UNDER 37 C.F.R. § 1.322
AND FOR APPLICANTS' MISTAKE (37 C.F.R. §1.323)

The enclosed Certificate of Correction (PTO/SB/44) is submitted to correct errors in this patent arising both as a result of an Office mistake and Applicants' mistake. Our credit card form for \$100.00 for the certificate of correction fee under 37 C.F.R. 1.20(a) is enclosed. Should any additional fee be required, the Commissioner is authorized to charge our Deposit Account No. 06-0029 and is requested to notify us.

The error at column 21, line 20 is the Applicants' error. The remaining errors are Patent Office errors and support for these corrections are itemized in the following table.

Column 20

Line 13	Patent claim 3	The portion being corrected was as originally filed and was never amended
Line 59	Patent claim 6	The portion being corrected was amended in the Amendment filed January 12, 2004 and accepted by the Examiner
Line 60	Patent claim 6	The portion being corrected was amended in the Amendment filed January 12, 2004 and accepted by the Examiner

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Request and Payment Information

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Application No.
10/066,874

Application No.

Serial No.

IDON Customer No.

Patent No.
6,846,614

Patent No.

Registration No.

Attorney Docket No.
58575-278005

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Column 21

Line 17	Application Claim 14 Patent Claim 13	The portion being corrected was as originally filed and was never amended
Line 20	Application Claim 15 Patent Claim 14	Applicants' mistake
Line 52	Application Claim 16 Patent Claim 20	The portion being corrected was amended in the Amendment filed January 12, 2004 and accepted by the Examiner

Column 22

Line 14	Application Claim 16 Patent Claim 20	The portion being corrected was amended in the Amendment filed January 12, 2004 and accepted by the Examiner
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Column 23

Line 23	Application Claim 37 Patent Claim 27	The portion being corrected was as originally filed and was never amended
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Column 24

Line 32	Application Claim 50 Patent Claim 31	The portion being corrected was as originally filed and was never amended
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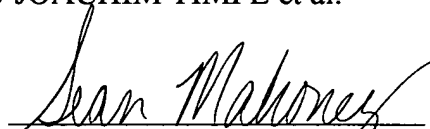
A copy of Amendment filed January 12, 2004 is attached. A certified Certificate of Correction is respectfully requested.

Respectfully Submitted,

HANS-JOACHIM TIMPE et al.

Dated: February 22, 2005

By:


Sean B. Mahoney, #51,984
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Minneapolis, MN 55402-3901
612/766-6845

UNITED STATES PATENT AND TRADEMARK OFFICE

CERTIFICATE OF CORRECTION

PATENT NO : 6,846,614 *B2*

DATED : January 25, 2005

INVENTOR(S) : HANS-JOACHIM TIMPE et al.

It is certified that error appears in the above-identified patent and that said Letters Patent are hereby corrected as shown below:

Column 20Line 13, after the word "ring;" delete the letter "A" and replace it with -- A⁹ --.

Line 59, delete the word "axyI" and replace it with -- aryl --.

Line 60, delete the phrase "intege" and replace it with -- integer from--.

Column 21

Line 17, delete the word "coloran" and replace it with -- colorant --.

Line 20, delete the phrase "radiation sensitive-sensitive" and replace it with
-- radiation-sensitive --

Line 52, delete the word "txiarylaxnine" and replace it with -- triarylamine --.

Column 22

Line 14, delete the word "chain" and replace it with -- chains --.

Column 23

Line 23, delete the ";" after the word "binder".

Column 24

Line 32, after the word "comprises" insert -- a --.

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PATENT NO. 6,846,614

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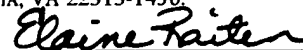
PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: HANS-JOACHIM TIMPE et al.	Examiner: Gilliam, Barbara Lee
Serial No.: 10/066,874	Group Art Unit: 1752
Filed: February 4, 2002	Docket No. 58575-278005
For: ON-PRESS DEVELOPABLE IR SENSITIVE PRINTING PLATES	

Commissioner for Patents
P. O. Box 1450
Alexandria, VA 22313-1450

I CERTIFY THAT, ON JANUARY 12, 2004, THIS PAPER IS BEING SENT
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Elaine Raiten

AMENDMENT & RESPONSE

This Amendment is responsive to the Office Action mailed October 10, 2003 and includes:

- Amendments to the Claims (Pages 2-17)
- Remarks (Pages 18-19)
- Conclusion (Page 20)
- Credit Card Payment (1 Page)

This Amendment is accompanied by credit card payment of the appropriate fee for the addition of one new independent claim. If this payment is incorrect, the Commissioner is authorized to charge or credit the Faegre & Benson Deposit Account No. 06-0029 and is requested to notify us of such action.

Amendments to the Claims

1. (CURRENTLY AMENDED) An ~~IR~~ infrared radiation-sensitive composition comprising:

- (a) a first polymeric binder which ~~does not comprise~~ is free of acidic groups moieties having a pKa value less than or equal to 8;
- (b) a second polymeric binder comprising polyether groups moieties;
- (c) an initiator system comprising:
 - (i) at least one ~~compound capable of absorbing IR radiation~~ infrared radiation absorbing material selected from comprising a triarylamine dye[[s]], thiazolium dye[[s]], indolium dye[[s]], oxazolium dye[[s]], cyanine dye[[s]], polyaniline dye[[s]], polypyrrole dye[[s]], polythiophene dye[[s]] ~~and or~~ phthalocyanine pigment[[s]];
 - (ii) at least one polyhaloalkyl-substituted compound capable of producing radicals, ~~selected from polyhaloalkyl-substituted compounds; and wherein~~

$$\text{ox}_{(i)} < \text{red}_{(ii)} + 1.6\text{eV}$$

and wherein ox_i is the oxidation potential of the infrared radiation absorbing material in eV and red_{ii} is the reduction potential of the polyhaloalkyl-substituted compound in eV; and

- (iii) at least one ~~polycarboxylic acid~~ compound represented by the following formula I



wherein Y is ~~selected from the group consisting of~~ O, S and or NR⁷,
each of R⁴, R⁵ and R⁶ is independently ~~selected from the group consisting~~

of hydrogen, C₁-C₄ alkyl, substituted or unsubstituted aryl, -COOH ~~and or~~
NR⁸CH₂COOH,

R⁷ is ~~selected from the group consisting of a~~ hydrogen, C₁-C₆ alkyl, -CH₂CH₂OH,
~~and or~~ C₁-C₅ alkyl substituted with -COOH, R⁸ is ~~selected from the group~~
~~consisting of~~ -CH₂COOH, -CH₂OH ~~and or~~ -(CH₂)₂N(CH₂COOH)₂, and r is 0,
1, 2 or 3, ~~with the proviso that and wherein~~ at least one of R⁴, R⁵, R⁶, R⁷ and R⁸
comprises a -COOH ~~group moiety~~ or salts thereof; and

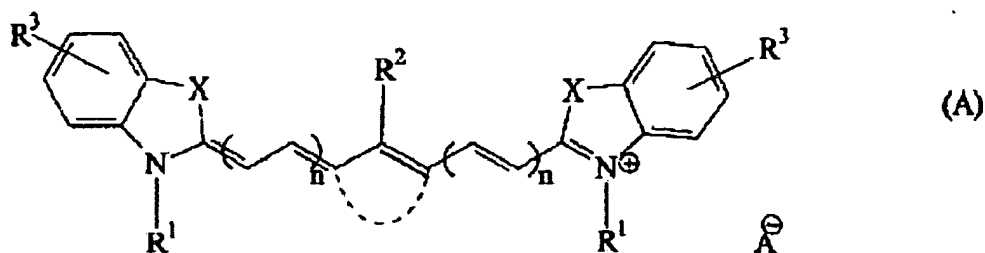
- (d) a free radical polymerizable system comprising at least one ~~member selected~~
~~from~~ unsaturated free radical polymerizable monomer[[s]], free radical
polymerizable oligomer₁[[s]] ~~which are free radical polymerizable and or a~~
polymer[[s]] containing C=C bonds in the back bone, ~~and/or in the side chains~~
groups, or both, ~~and wherein the following inequality is met:~~

$$ox_i < red_{ii} + 1.6\text{eV}$$

with ox_i = oxidation potential of component (i) in eV red_{ii} =
reduction potential of component (ii) in eV.

2. (CURRENTLY AMENDED) The ~~IR~~ infrared radiation-sensitive composition according
to claim 1, wherein the ~~compound capable of~~ infrared radiation absorbing material
~~absorbing IR radiation is~~ comprises a cyanine dye.

3. (CURRENTLY AMENDED) The ~~IR~~ infrared radiation-sensitive composition according
to claim 1 [[2]], wherein the ~~cyanine dye has~~ infrared radiation absorbing material is
represented by the formula (A)



wherein each X is independently S, O, NR or C(alkyl)₂; each R¹ is independently an alkyl group, an alkylsulfonate or an alkylammonium group; R² is hydrogen, halogen, SR, SO₂R, OR or NR₂; each R³ is independently [[a]] hydrogen atom, an alkyl group, COOR, OR, SR, NR₂, [[a]] halogen atom or an optionally substituted benzofused ring; A⁻ is an anion; the dashed line (---) completes an optional carbocyclic five- or six-membered ring; each R is independently hydrogen, an alkyl or aryl group; and each n is independently 0, 1, 2 or 3.

4. (CURRENTLY AMENDED) The ~~IR~~ infrared radiation-sensitive composition according to claim 1, wherein the ~~compound capable of absorbing IR-radiation~~ infrared radiation absorbing material is selected from the group consisting of comprises:

2-[2-[2-thiophenyl-3-[2-(1,3-dihydro-1,3,3-trimethyl-2H-indol-2-ylidene)-ethylidene]-1-cyclopenten-1-yl]-ethenyl]-1,3,3-trimethyl-3H-indolium tosylate;

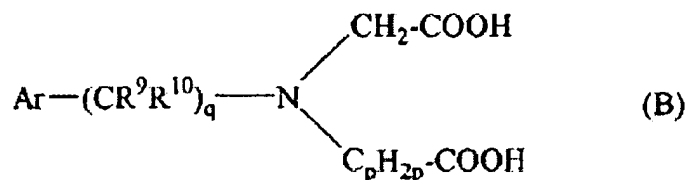
2-[2-[2-phenylsulfonyl-3-[2-(1,3-dihydro-1,3,3-trimethyl-2H-indol-2-ylidene)-ethylidene]-1-cyclohexen-1-yl]-ethenyl]-1,3,3-trimethyl-3H-indolium chloride;

2-[2-[2-thiophenyl-3-[2-(1,3-dihydro-1,3,3-trimethyl-2H-indol-2-ylidene)-ethylidene]-1-cyclohexen-1-yl]-ethenyl]-1,3,3-trimethyl-3H-indolium chloride;

2-[2-[2-chloro-3-[2-(1,3-dihydro-1,3,3-trimethyl-2H-indol-2-ylidene)-ethylidene]-1-cyclohexen-1-yl]-ethenyl]-1,3,3-trimethyl-3H-indolium tosylate;
~~and or~~
2-[2-[2-chloro-3-[2-ethyl-(3H-benzothiazol-2-ylidene)-ethylidene]-1-cyclohexen-1-yl]-ethenyl]-3-ethyl-benzothiazolium tosylate.

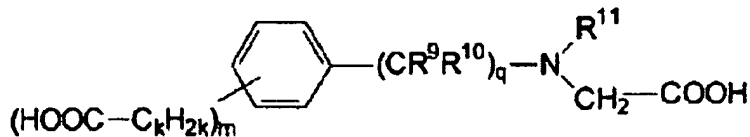
5. (CURRENTLY AMENDED) The ~~IR~~ infrared radiation-sensitive composition ~~according to~~ of claim 1, wherein the ~~compound capable of producing radicals is selected from the group consisting of~~ polyhaloalkyl-substituted compound comprises 2-(4-methoxyphenyl)-4,6-bis-(trichloromethyl)-s-triazine, 2-(4-chlorophenyl)-4,6-bis-(trichloromethyl)-s-triazine, 2-phenyl-4,6-bis-(trichloromethyl)-s-triazine, 2,4,6-tri-(trichloromethyl)-s-triazine, 2,4,6-tri-(tribromomethyl)-s-triazine, ~~and or~~ tribromomethyl phenylsulfone.

6. (CURRENTLY AMENDED) The ~~IR~~ infrared radiation-sensitive composition ~~according to~~ of claim 1, wherein the ~~polycarboxylic acid is selected from the group consisting of the~~ compound represented by formula I comprises a compound ~~of~~ represented by formula (B)



wherein Ar is a mono, poly or unsubstituted aryl group, p is an integer from 1 to 5, R⁹ and R¹⁰ are independently selected from the group consisting of hydrogen and C₁-C₄ alkyl and q is 0 or an integer from 1 to 3, and a compound of formula (C)

or a compound represented by formula C



(C)

wherein Ar is a mono-, poly- or unsubstituted aryl group, p is an integer from 1 to 5, each R^9 and R^{10} is independently hydrogen or C_1 - C_4 alkyl, q is 0 or an integer from 1 to 3, and wherein R^{11} represents is $[[a]]$ hydrogen atom or a C_1 - C_6 alkyl group, and k and m each are an integer from 1 to 5, and R^9 , R^{10} and q are as defined above.

7. (CURRENTLY AMENDED) The ~~IR~~ infrared radiation-sensitive composition ~~according to of claim 1~~ $[[6]]$, wherein the polycarboxylic acid is selected from compound represented by formula I comprises anilino diacetic acid and or N-(carboxymethyl)-N-benzyl-glycine.

8. (CANCELLED) The IR-sensitive composition according to of claim 1, wherein the first polymeric binder comprises side chains comprising at least one group selected from the group consisting of $-\text{COOR}$, $-\text{CONHR}$ and $-\text{NR}^{12}\text{COOR}^{13}$ groups.

9. (CURRENTLY AMENDED) The ~~IR~~ infrared radiation-sensitive composition ~~according to of claim 1~~, wherein the first polymeric binder comprises a main chain comprising at least one of ester group $[[s]]$ and or urethane group $[[s]]$.

10. (CURRENTLY AMENDED) The ~~IR~~ infrared radiation-sensitive composition ~~according to of claim 1~~, wherein the polyether groups of the second polymeric binder are derived from polyoxy alkylenes.

11. (CURRENTLY AMENDED) The ~~IR~~ infrared radiation-sensitive composition ~~according to~~ of claim ~~10~~ 43, wherein the polyoxy alkylenes ~~are selected from~~ comprise ethylene oxide ~~and or~~ or propylene oxide.

12. (CURRENTLY AMENDED) The ~~IR~~ infrared radiation-sensitive composition ~~according to~~ of claim 1, wherein the polyether groups of the second polymeric binder comprise at least one end group ~~selected from the group consisting of~~ comprising -OH, ~~OR, RCONH, and~~ SiR₂OR groups.

13. (CURRENTLY AMENDED) The ~~IR~~ infrared radiation-sensitive composition ~~according to~~ of claim 1, further comprising a leuco dye ~~selected from the group consisting of~~ comprising a triarylmethane[[s]], thioxanthene[[s]], 9,10-dihydro-acridine[[s]] ~~and or~~ or phenoxazine[[s]] dye.

14. (CURRENTLY AMENDED) The ~~IR~~ infrared radiation-sensitive composition ~~according to~~ of claim 1, further comprising at least one colorant ~~selected from the group consisting of~~ comprising a rhodamine dye[[s]], triarylmethane dye[[s]], anthraquinone pigment[[s]], phthalocyanine dye[[s]], ~~and or~~ or a pigment[[s]].

15. (CURRENTLY AMENDED) The ~~IR~~ radiation sensitive-sensitive composition ~~according to~~ of claim 1, further comprising at least one softening agent.

16. (CURRENTLY AMENDED) A printing plate precursor comprising:

- (A) a substrate;
- (B) a negative-working bottom layer applied onto the substrate, and comprising an IR-sensitive composition comprising a polymeric binder comprising polyether groups moieties and an initiator system comprising:
 - (i) at least one infrared radiation absorbing material comprising a triarylamine dye, thiazolium dye, indolium dye, oxazolium dye, cyanine

dye, polyaniline dye, polypyrrole dye, polythiophene dye or phthalocyanine pigment;

(ii) at least one polyhaloalkyl-substituted compound capable of producing radicals, wherein

$$\text{ox}_{(i)} < \text{red}_{(ii)} + 1.6\text{eV}$$

and wherein ox_i is the oxidation potential of the infrared radiation absorbing material in eV and red_{ii} is the reduction potential of the polyhaloalkyl-substituted compound in eV; and

(iii) at least one compound represented by the formula I



wherein Y is O, S or NR⁷,

each of R⁴, R⁵ and R⁶ is hydrogen, C₁-C₄ alkyl, substituted or unsubstituted aryl, -COOH or NR⁸CH₂COOH, R⁷ is C₁-C₆ alkyl, -CH₂CH₂OH, or C1-C5 alkyl substituted with -COOH, R⁸ is -CH₂COOH, -CH₂OH and or -(CH₂)₂N(CH₂COOH)₂, and r is 0, 1, 2 or 3, and wherein at least one of R⁴, R⁵, R⁶, R⁷ and R⁸ comprises a -COOH moiety or salts thereof;

(C) a free radical polymerizable system comprising at least one unsaturated free radical polymerizable monomer, free radical polymerizable oligomer, or a polymer containing C=C bonds in the back bone, in the side chains, or both.

(D) an oxygen-impermeable top layer applied onto the bottom layer, wherein the printing plate precursor ~~does not comprise an~~ is free of an ~~IR~~ infrared radiation-ablatable layer.

17. (CANCELLED)The printing plate precursor of Claim 16, wherein the IR-sensitive composition further comprises:

- (a) a polymeric binder which does not comprise acidic groups having a pKa value less than or equal to 8;
- (b) an initiator system comprising:
 - (i) at least one compound capable of absorbing IR radiation selected from triarylamine dyes, thiazolium dyes, indolium dyes, oxazolium dyes, cyanine dyes, polyaniline dyes, polypyrrole dyes, polythiophene dyes and phthalocyanine pigments;
 - (ii) at least one compound capable of producing radicals selected from polyhaloalkyl-substituted compounds; and
 - (iii) at least one polycarboxylic acid represented by the following formula

I



wherein Y is selected from the group consisting of O, S and NR⁷, each of R⁴, R⁵ and R⁶ is independently selected from the group consisting of hydrogen, C₁-C₄ alkyl, substituted or unsubstituted aryl, -COOH and NR⁸CH₂COOH,

R⁷ is selected from the group consisting of hydrogen, C₁-C₆ alkyl, -CH₂CH₂OH, and C₁-C₅ alkyl substituted with -COOH,

R⁸ is selected from the group consisting of -CH₂COOH, -CH₂OH and -

(CH₂)₂N(CH₂COOH)₂ and r is 0, 1, 2 or 3, with the proviso that at least one of R⁴, R⁵, R⁶, R⁷ and R⁸ comprises a -COOH group or salts thereof; and

- (c) a free radical polymerizable system comprising at least one member selected from unsaturated free radical polymerizable monomers, oligomers which are free radical polymerizable and polymers containing C=C bonds in the back bone, and/or in the side chain groups, wherein the following inequality is met:

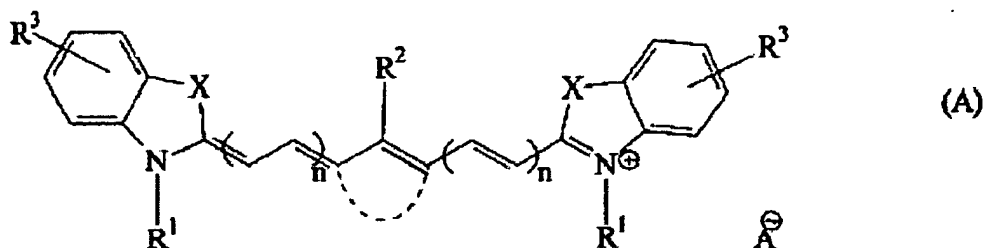
$$ox_i < red_{II} + 1.6 \text{ eV}$$

with ox_i = oxidation potential of component (i) in eV

red_{ii} = reduction potential of component (ii) in eV.

18. (CANCELLED) The printing plate precursor according to claim 17, wherein the compound capable of absorbing IR-radiation is a cyanine dye.

19. (CANCELLED) The printing plate precursor according to claim 18, wherein the cyanine dye has the formula (A)



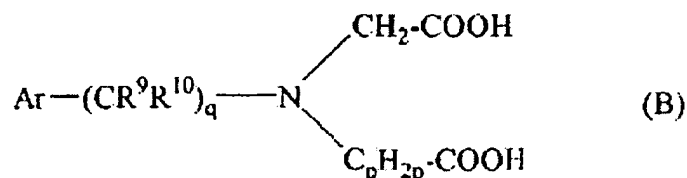
wherein each X is independently S, O, NR or C(alkyl)₂; each R¹ is independently an alkyl group, an alkylsulfonate or an alkylammonium group; R² is hydrogen, halogen, SR, SO₂R, OR or NR₂, each R³ is independently a hydrogen atom, an alkyl group, COOR, OR, SR, NR₂, a halogen atom or an optionally substituted benzofused ring; A⁻ is an anion; the dashed line (—) completes an optional carbocyclic five- or six-membered ring; each R is independently hydrogen, an alkyl or aryl group; and each n is independently 0, 1, 2 or 3.

20. (CANCELLED) The printing plate precursor according to claim 17, wherein the compound capable of absorbing IR-radiation is selected from the group consisting of:

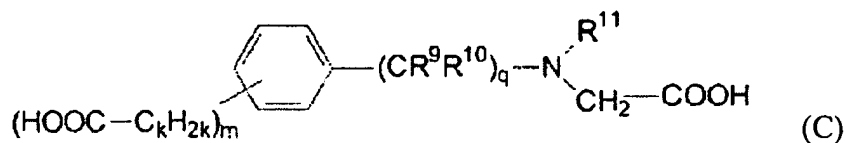
2-[2-[2-thiophenyl-3-[2-(1,3-dihydro-1,3,3-trimethyl-2H-indol-2-ylidene)-ethylidene]-1-cyclopenten-1-yl]-ethenyl]-1,3,3-trimethyl-3H-indolium tosylate;
2-[2-[2-phenylsulfonyl-3-[2-(1,3-dihydro-1,3,3-trimethyl-2H-indol-2-ylidene)-ethylidene]-1-cyclohexen-1-yl]-ethenyl]-1,3,3-trimethyl-3H-indolium chloride;

2-[2-[2-thiophenyl-3-[2-(1,3-dihydro-1,3,3-trimethyl-2H-indol-2-ylidene)-ethylidene]-1-cyclohexen-1-yl]-ethenyl]-1,3,3-trimethyl-3H-indolium chloride;
2-[2-[2-chloro-3-[2-(1,3-dihydro-1,3,3-trimethyl-2H-indol-2-ylidene)-ethylidene]-1-cyclohexen-1-yl]-ethenyl]-1,3,3-trimethyl-3H-indolium tosylate;
and
2-[2-[2-chloro-3-[2-ethyl-(3H-benzothiazol-2-ylidene)-ethylidene]-1-cyclohexen-1-yl]-ethenyl]-3-ethyl-benzothiazolium tosylate.

21. (CANCELLED) The printing plate precursor according to claim 17, wherein the polycarboxylic acid is selected from the group consisting of a compound of formula (B)



wherein Ar is a mono-, poly- or unsubstituted aryl group, p is an integer from 1 to 5, R⁹ and R¹⁰ are independently selected from the group consisting of hydrogen and C₁-C₄ alkyl and q is 0 or an integer from 1 to 3,
and a compound of formula (C)



wherein R¹¹ represents a hydrogen atom or a C₁-C₆ alkyl group, k and m each are an integer from 1 to 5, and R⁹, R¹⁰ and q are as defined above.

22. (CANCELLED) The printing plate precursor according to claim 17, wherein the polymeric binder which does not comprise acidic groups having a pKa value less than or equal to 8 comprises side chains comprising at least one group selected from -COOR, -CONHR, and -NR¹²COOR¹³ groups.
23. (CANCELLED) The printing plate precursor according to claim 17, wherein the polymeric binder which does not comprise acidic groups having a pKa value less than or equal to 8 comprises a main chain comprising at least one of ester groups and methane groups.
24. (CANCELLED) The printing plate precursor according to claim 16, wherein the polyether groups are derived from polyoxy alkylenes.
25. (CANCELLED) The printing plate precursor according to claim 24, wherein the polyoxy alkylenes are selected from ethylene oxide and propylene oxide.
26. (CANCELLED) The printing plate precursor according to claim 16, wherein, the polyether groups comprise at least one group selected from the group consisting of -OH, -OR, RCONH-, and SiR₂OR groups.
27. (ORIGINAL) The printing plate precursor of claim 16, wherein the oxygen-impermeable layer comprises polyvinyl alcohol.
28. (PRESENTLY AMENDED) The printing plate precursor of claim 16, wherein the oxygen-impermeable layer comprises one of behenic acid, behenic acid amide, and or N,N'-diallyl tartardiamide.
29. (CANCELLED) The printing plate precursor of claim 17, wherein the IR-sensitive composition further comprises at least one colorant selected from the group consisting of

rhodamine dyes, triarylmethane dyes, anthraquinone pigments, phthalocyanine dyes and/or pigments.

30. (CANCELLED) The printing plate precursor of claim 17, wherein the IR-sensitive composition further comprises at least one softening agent.

31. (PRESENTLY AMENDED) A method for preparing an on-press developable printing plate, the method comprising:

(A) providing a substrate;

(B) applying a negative-working bottom layer comprising an ~~IR~~ an infrared radiation-sensitive composition onto the substrate to ~~obtain form~~ a printing plate precursor, wherein the ~~IR radiation sensitive-composition~~ comprises a first polymeric binder which is free of acidic groups moieties having a pKa value less than or equal to 8,

a second polymeric binder comprising polyether groups moieties,
an initiator system comprising at least one infrared radiation absorbing material, at least one compound capable of producing radicals and at least one compound represented by the formula I



wherein Y is O, S or NR⁷, each of R⁴, R⁵ and R⁶ is hydrogen, C₁-C₄ alkyl, substituted or unsubstituted aryl, -COOH or NR⁸CH₂COOH, R⁷ is hydrogen, C₁-C₆ alkyl, -CH₂CH₂OH, or C₁-C₅ alkyl substituted with -COOH, R⁸ is -CH₂COOH, -CH₂OH and or -(CH₂)₂N(CH₂COOH)₂, and r is 0, 1, 2 or 3, and wherein at least one of R⁴, R⁵, R⁶, R⁷ and R⁸ comprises a -COOH moiety or salts thereof; and a free radical polymerizable system;

(C) applying an oxygen-impermeable top layer onto the bottom layer;

(D) imagewise exposing the printing plate precursor ~~obtained in step (B)~~ to IR infrared radiation; and

(E) developing the imagewise exposed printing plate precursor ~~on a press on-~~
~~press, wherein the method does not comprise without a~~
separate development step ~~and does not comprise a~~ or heating step, and wherein the
printing plate ~~does not comprise~~ is free of an IR infrared radiation laser ablatable layer.

32. (PRESENTLY AMENDED) The method of Claim 31, wherein the ~~IR-sensitive composition~~
initiator system further comprises

(a) ~~a polymeric binder which does not comprise acidic groups having a pKa less than or~~
~~equal to 8;~~

~~(d) an initiator system comprising:~~

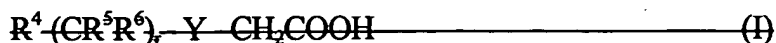
- (i) at least one ~~compound capable of absorbing IR radiation~~ infrared
radiation absorbing material ~~selected from comprising a~~ triarylamine
dye[[s]], thiazolium dye[[s]], indolium dye[[s]], oxazolium dye[[s]],
cyanine dye[[s]], polyaniline dye[[s]], polypyrrole dye[[s]], polythiophene
dye[[s]] ~~and or~~ phthalocyanine pigment[[s]];
- (ii) at least one polyhaloalkyl-substituted compound capable of producing
radicals, ~~selected from polyhaloalkyl-substituted compounds; and wherein~~

$$\text{ox}_{(i)} < \text{red}_{(ii)} + 1.6\text{eV}$$

and wherein ox_i is the oxidation potential the infrared radiation
absorbing material in eV and red_{ii} is the reduction potential of
the polyhaloalkyl-substituted compound in eV; and

~~(iii) at least one polycarboxylic acid represented by the following formula~~

I



~~wherein Y is selected from the group consisting of O, S and NR⁷;~~
~~each of R⁴, R⁵ and R⁶ is independently selected from the group consisting~~
~~of hydrogen, C₁-C₄ alkyl, substituted or unsubstituted aryl, COOH and~~
~~NR⁸CH₂COOH,~~
~~R⁷ is selected from the group consisting of hydrogen, C₁-C₆ alkyl, CH₂CH₂OH,~~
~~and C₁-C₅ alkyl substituted with COOH, R⁸ is selected from the group~~
~~consisting of CH₂COOH, CH₂OH and (CH₂)₂N(CH₂COOH)₂, and r is 0, 1, 2~~
~~or 3, with the proviso that at least one of R⁴, R⁵, R⁶, R⁷ and R⁸ comprises a~~
~~COOH group or salts thereof~~ wherein the free radical polymerizable system
comprises at least one unsaturated free radical polymerizable monomer, free
radical polymerizable oligomer, or a polymer containing C=C bonds in the
backbone, side chains or both.

33. (CANCELLED) The method of claim 31, wherein the oxygen-impermeable layer comprises polyvinyl alcohol.
34. (CANCELLED) The method of claim 31, wherein the oxygen-impermeable layer comprises one of behenic acid, behenic acid amide, and N,N'-diallyl tartardiamide.
35. (CANCELLED) The method of claim 32, wherein the IR-sensitive composition comprises at least one colorant selected from the group consisting of rhodamine dyes, triarylmethane dyes, anthraquinone pigments and phthalocyanine dyes and/or pigments.
36. (CANCELLED) The method of Claim 32, wherein the IR-sensitive composition comprises at least one softening agent.
37. (NEW) A printing plate precursor comprising:
a substrate;
an infrared radiation-sensitive layer comprising:

a first polymeric binder that is free of acidic groups having a pKa value less than or equal to 8,
a second polymeric binder comprising polyether moieties,
an initiator system comprising an infrared radiation absorber, at least one compound capable of producing free radicals and at least one polycarboxylic compound; and
a free radical polymerizable system.

38. (NEW) The printing plate precursor of claim 37 further comprising an oxygen-impermeable layer applied onto the infrared radiation-sensitive layer.

39. (NEW) The printing plate precursor of claim 37 wherein the initiator system comprises:

- (i) at least one infrared radiation absorbing material comprising a triarylamine dye, thiazolium dye, indolium dye, oxazolium dye, cyanine dye, polyaniline dye, polypyrrole dye, polythiophene dye or phthalocyanine pigment;
- (ii) at least one polyhaloalkyl-substituted compound capable of producing radicals, wherein

$$\text{ox}_{(i)} < \text{red}_{(ii)} + 1.6\text{eV}$$

and wherein ox_i is the oxidation potential of the infrared radiation absorbing material in eV and red_{ii} is the reduction potential of the radiation absorbing material in eV; and

- (iii) at least one compound represented by the formula I



wherein Y is O, S or NR^7 ,

each of R^4 , R^5 and R^6 is hydrogen, C_1 - C_4 alkyl, substituted or unsubstituted aryl, $-COOH$ or NR^8CH_2COOH , R^7 is C_1 - C_6 alkyl, $-CH_2CH_2OH$, or C_1 - C_5 alkyl substituted with $-COOH$, R^8 is $-CH_2COOH$, $-CH_2OH$ or $-(CH_2)_2N(CH_2COOH)_2$, and r is 0, 1, 2 or 3, and wherein at least one of R^4 , R^5 , R^6 , R^7 and R^8 comprises a $-COOH$ moiety or salts thereof.

40. (NEW) The printing plate precursor of claim 37 wherein the free radical polymerizable material comprises at least one unsaturated free radical polymerizable monomer, free radical polymerizable oligomer or a polymer containing $C=C$ bonds in the back bone in the side chains, or both.

Remarks

Claims 1-7 (each amended), 9-16 (each amended), 27, 28 (amended) and 31-32 (each amended) are pending. Claims 8, 17-26, 29-30 and 33-36 have been cancelled to simplify prosecution by eliminating certain generally duplicative claims. New claims 37-40 have been added. Applicants respectfully request reconsideration of this application in view of the claim amendments and the following remarks.

CLAIM AMENDMENTS

Claims 1-7, 9-15, and 28 were amended to clarify the scope of the invention without narrowing the scope of the claims. Claim 16 was amended to include the initiator system recited in independent claim 1 as originally filed. Claim 31 was amended to recite that the bottom layer includes first and second polymeric binders, an initiator system and a free radical polymerizable system. New claims 37-40 are directed to printing plate precursors having a radiation sensitive layer that includes first and second polymeric materials, an initiator system and a free radical polymerizable system. These new claims are fully supported by the claims and specification as originally filed.

CLAIM OBJECTIONS

The Office Action objected to claim 11 for improperly depending from claim 13. Claim 11 has been amended to depend from claim 10. Applicants respectfully request withdrawal of this rejection.

CLAIM REJECTIONS UNDER 35 U.S.C. § 102

Claims 16, 24-28, 31, and 33-34 were rejected under § 102(a) as being anticipated by EP 1 106 381 A1 to Sawada et al. More particularly, the Office Action stated that Sawada et al. reports a radiation sensitive layer in which polyethylene oxide may be included as a binder polymer and polyethers may be included to enhance the strength of the photosensitive layer. The Office Action further stated that Sawada et. al. reports a protective layer adapted to prevent oxygen from mixing with the photosensitive layer.

Claim 16 has been amended to recite that the negative-working bottom layer comprises the initiator system recited in claim 1. As noted by the Examiner in Paragraph 8 of the Office Action, Sawada et al. does not teach or suggest the claimed initiator system, in particular, the claimed polycarboxylic acid compound (i.e. Formula I). Applicants respectfully request withdrawal of this rejection.

Claim 31, as amended, recites a method for preparing an on-press developable printing plate, in which the bottom layer of the printing plate includes first and second polymeric binders, an initiator system and a free radical polymerizable system. Applicants respectfully submit that Sawada et al. does not report a bottom layer including these components. Additionally, Sawada et al. does not report on-press development of a printing plate precursor without a separate development step, but rather, reports that the precursor is developable in water. Furthermore, all of the examples reported in Sawada et al. utilize a separate development step rather than utilizing on-press development. Therefore, Sawada et al. does not report or suggest the claimed bottom layer or the on-press development step, and Applicants respectfully request withdrawal of this rejection.

New claim 37 recites a printing plate precursor having a radiation-sensitive layer including a first polymeric binder that is free of acidic groups having a pKa value less than or equal to 8, a second polymeric binder that includes polyether moieties, an initiator system and a free radical polymerizable material. As noted by the Examiner, the cited art does not report a radiation sensitive layer having the claimed polymeric binders or initiator system. New claims 38-40 depend from claim 37. Applicants respectfully request allowance of these claims.

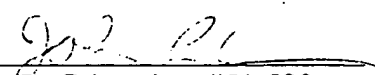
CONCLUSION

The pending claims are in condition for allowance, and Applicants respectfully request a notice to that effect. If there are any remaining questions, the Examiner is requested to contact the undersigned at the number listed below.

Respectfully Submitted,

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